

WHAT IS CLAIMED IS:

1. A receiver optical sub assembly, comprising:

a multimode optical fiber stub; and

a lens system oriented with respect to the multimode optical fiber stub to focus an optical beam exiting the multimode optical fiber stub onto an active area of an optical detector.
2. The assembly of claim 1, wherein the multimode optical fiber stub is mounted in a stub holder, the stub holder being positioned in a receptacle.
3. The assembly of claim 2, further including a split sleeve positioned over a portion of the multimode optical fiber stub, the split sleeve being capable of positioning a single-mode optical fiber to optically couple with the multimode optical fiber stub.
4. The assembly of claim 1, wherein the lens system is mounted on a lens cap, the lens cap being mounted on a TO header so that the beam is focused on an active area of a detector chip mounted on the TO header.
5. The assembly of claim 1, wherein the lens system is a ball lens.
6. The assembly of claim 1, wherein the optical detector includes an avalanche photo diode.
7. The assembly of claim 1, wherein the multimode fiber stub includes an exit surface, the exit surface being polished at an angle with respect to an optical axis of the multimode fiber stub.
8. The assembly of claim 1, wherein the angle is about 8 degrees.
9. The assembly of claim 7, wherein the optical detector chip is offset from the optical axis of the multimode optical fiber.
10. A method of receiving light in a receiver optical sub assembly, comprising:

coupling a light beam from a single-mode optical fiber into a multimode fiber stub; and

focusing the light beam onto an active area of an optical detector.

11. The method of claim 10, further including

providing an angled exit surface on the multimode fiber stub; and

positioning the active area of the optical detector to compensate for the angled exit surface.

12. A receiver optical sub assembly, comprising:

means for receiving a light beam into a multimode fiber stub; and

means for focusing the light beam onto an active area of an optical detector.

13. The receiver of claim 12, further comprising:

means for increasing the return loss characteristics of the receiver optical sub assembly.

14. A method of assembling a receiver optical sub assembly, comprising:

press fitting a multimode fiber stub into a stub holder;

positioning a split sleeve over a portion of the multimode fiber stub;

press fitting the stub holder into a receptacle;

positioning a lens system in a lens cap;

positioning a detector chip onto a header;

mounting the lens cap to the header so that light received by the lens system is focused onto an active area of the detector chip;

actively aligning the active area of the detector chip with respect to the multimode fiber stub; and

positionally fixing the active area of the detector chip with respect to the multimode fiber stub.

15. The method of claim 14, wherein positionally fixing the active area includes epoxying the header to the receptacle.

16. A receiver optical sub assembly, comprising:

means for adjusting a beam waist of an optical signal received in the receiver optical sub assembly;

means for focusing a beam from the means for adjusting onto an active surface of an optical detector chip.